Chapter 8

Marine Mammals, Seabirds and Sea Turtles

I. Marine Mammals

Introduction

The Pacific Ocean is home to vast numbers of marine mammals. Interactions between fishing operations and marine mammals are unavoidable. Observers provide reliable estimates of marine mammal interactions with fishing fleets, including data on accidental takes by fishery.

Marine Mammal Protection Act

The Marine Mammal Protection Act of 1972 (MMPA) was most recently reauthorized in 1994. In passing the MMPA, Congress found that certain species and populations of marine mammals are, or may be, in danger of extinction or depletion as a result of human activities. The Act states:

- Such species and population stocks should not be permitted to diminish beyond the point at which they cease to be a significant functioning element in the ecosystem of which they are a part, and, consistent with this major objective, they should not be permitted to diminish below their optimum sustainable population level.
- Measures should be taken immediately to replenish any species or population stock, which has diminished below its optimum sustainable level.
- There is inadequate knowledge of the ecology and population dynamics of such marine mammals and of the factors, which bear upon their ability to reproduce themselves successfully.
- Marine mammals have proven themselves to be resources of great international significance, aesthetic and recreational as well as economic.

The MMPA established a moratorium, with certain exceptions, on the taking of marine mammals in U.S. waters, by U.S. citizens on the high seas, and on the importation of marine mammals and marine mammal products into the United States. It is also illegal to intentionally feed any marine mammal in the wild. Intentional feeding is considered a form of harassment.

Observers and the MMPA

Observers **must document** all marine mammal interactions including, but not limited to, takes and intentional feeding. 50 CFR 229.7 of the Federal Code of Regulations, gives observers the authority to take and possess pinniped snouts and cetacean tissues. **Do not collect bones, skulls, or any other parts as specimens** as they are not needed and will be discarded. Walrus and sea otters are under the jurisdiction of the U. S. Fish and Wildlife Service and possessing any specimen material from them is a federal offense.

Marine Mammal Data Collection Priorities

The role of observers under the MMPA is to conduct statistically reliable monitoring of fishing operations and to record information on all interactions between fishing operations and marine mammals. Sample ALL hauls/sets for marine mammals caught by a vessel's fishing gear.

Marine mammal data collection in order of priority:

1. Collect length, sex, and weight (if possible) information from any dead marine mammal brought on-board a fishing vessel.
2. Collect canine teeth (snouts) from any dead sea lion or Northern fur seal brought on-board a fishing vessel.
3. Collect tissue from any dead cetacean brought on-board a fishing vessel.

4. Collect interaction and sighting information on marine mammals that interact directly with the fishing vessel and/or the vessel's fishing gear.
5. Collect sighting information on marine mammals that are visible from the vessel while at-sea.

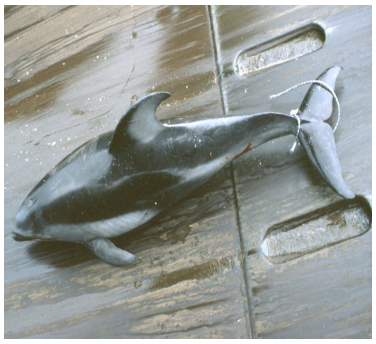
Marine Mammal Data Collection Procedures

Data collection from marine mammals falls into two categories, the collection of biological specimen information and the collection of interaction and sighting information. Biological specimen information is collected from dead marine mammals brought on-board fishing vessels and includes the length, sex and weight of the animal. Collection of specimen data may also include taking a physical sample such as a snout or tissue sample.

Interaction and sighting information is collected about live marine mammals that come in contact with the fishing vessel or that can be seen from the fishing vessel while at-sea. Interaction and sighting information includes a physical description of the marine mammal(s), behavioral information and data about the physical environment (sea state, visibility, etc.).

When collecting biological specimen or interaction and sighting information from marine mammals, follow the data collection procedures explained below.

Sampling Marine Mammals Takes



Before touching a marine mammal, remember that there are many diseases that are transferable from marine mammals to humans. **Always wear gloves when handling a marine mammal.**

There are two acceptable methods for measuring marine mammals, standard lengths and curvilinear lengths. Taking a standard length is the preferred method. The standard

length of a marine mammal is the distance in a straight line from the tip of the snout or rostrum to the tip of the tail notch. A curvilinear length is the shortest surface distance from the tip of the snout or rostrum to the tip of the tail notch along the back, belly, or side

Collect marine mammal lengths using the following procedure:

1. Put on a pair of rubber deck gloves to prevent the transfer of disease.
2. Weigh the marine mammal or if too large, visually estimate weight.
3. Lay the marine mammal on its back with its head and vertebral column in a straight line as best possible.
4. Take the standard length (preferred) or curvilinear length of the marine mammal.
    - **Standard Length** - Measure the straight line distance from the tip of the snout or rostrum to the tip of the tail notch on an animal that is belly up (See Figure 8-1, measurement #1).

OR

    - **Curvilinear length - Only used if rigor has set in or the animal is too large or deteriorated to maneuver.** Measure the shortest surface distance from the tip of the snout or rostrum to the tip of the tail notch along the back, belly, or side (See Figure 8-1, measurement #2).

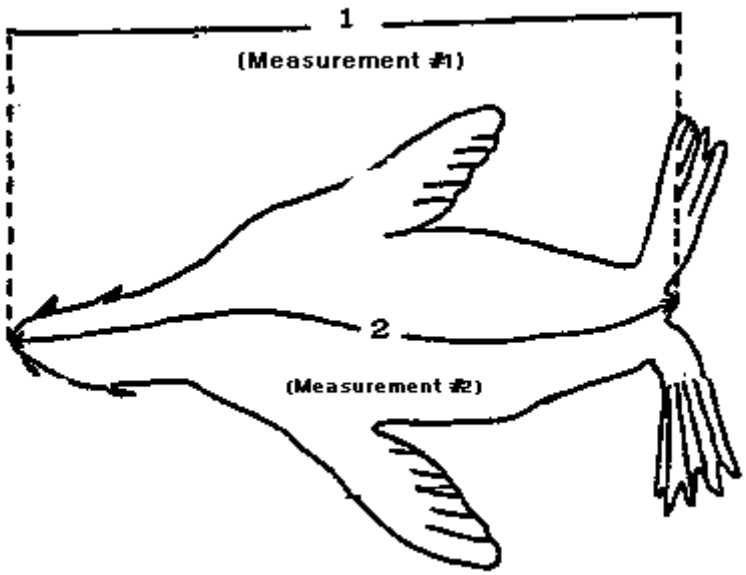


Figure 8-1: Pinniped Measurements (NPGOP)

1. Sex the marine mammal. See Figure 8-2, page 8 to view the morphological differences between male and female cetaceans and pinnipeds. In Cetaceans, the distance between the anus and the genitals is greater in males. Otherwise the sexes appear similar because both sexes have external teats and females have an enlarged clitoris.
2. Record the weight on the **Species Composition Form** (if actual weight) and/or Catch Form (if visual estimate).
3. Record the length, sex, weight (if actual) on the **Biospecimen Form**.
4. Complete a **Marine Mammal/Seabird/Sea Turtle Sighting and Interaction Form**.

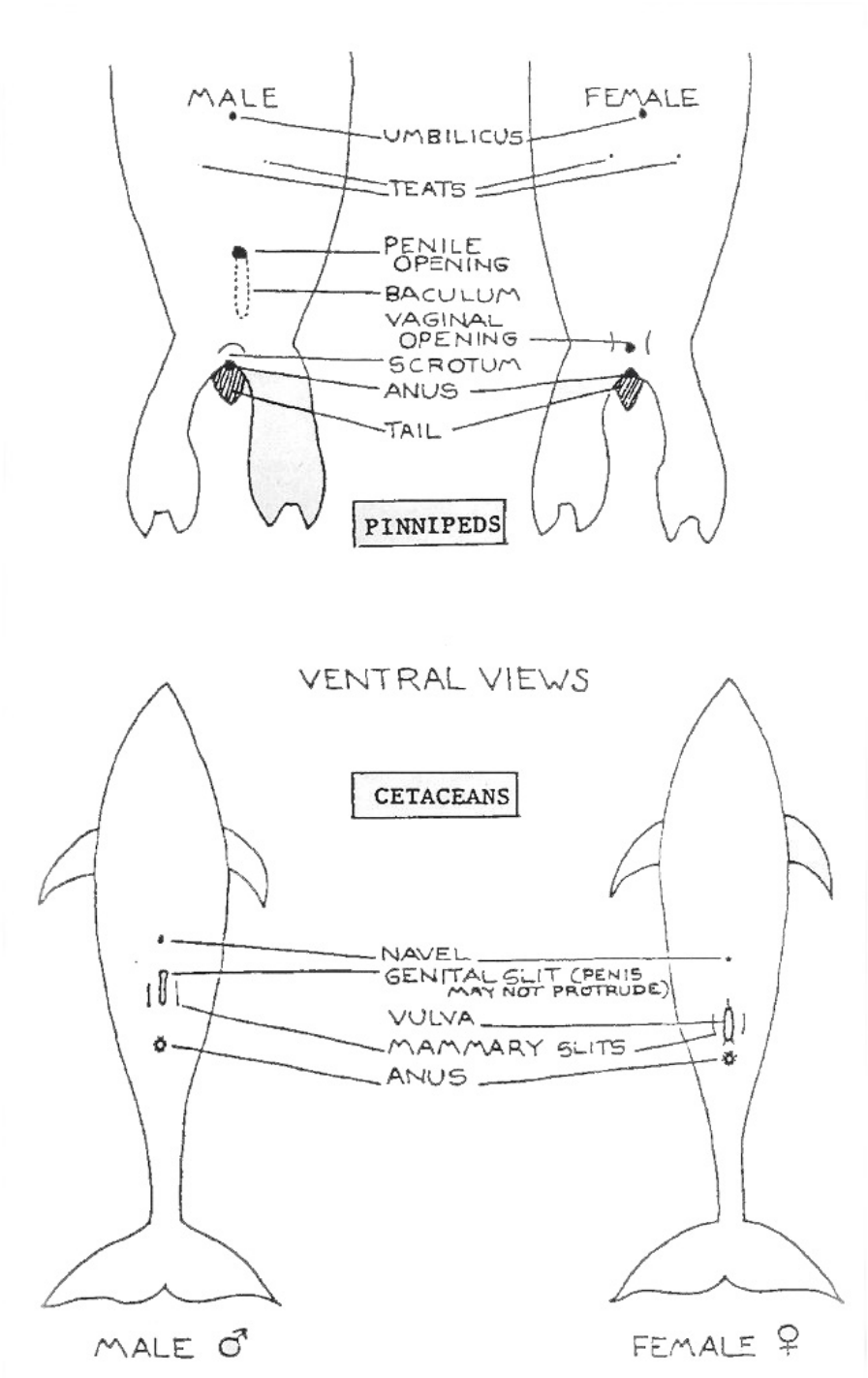


Figure 8-2: Sexing Marine Mammals (NPGOP)

Taking Dissection from Marine Mammals

Only two dissections are taken from marine mammals, pinniped snouts and cetacean tissue.

Collecting Canine Teeth from Pinnipeds

If a Steller's sea lion or Northern fur seal is caught and killed or found dead in the fishing gear, the canine teeth of the animal must be collected. Pinniped teeth are used for aging, assessing health, and species identification.

The end of the upper snout must be cut off without damaging the root of the canine teeth. The procedure for the collection of canine teeth from a pinniped is:

1. Collect weight, length, and sex. For instructions, see "Sampling Marine Mammals Takes" on page 5
2. Skin the snout using a sharp knife.
3. The roots of the canine teeth arch back. To ensure that the entire canine root is collected, cut the snout between the second and third post-canine teeth (See Figure 8-3). Use a hacksaw to remove the snout.
4. Preserve the snout by placing it inside three plastic bags and either freezing the specimen or salting it.

Tip* Never preserve the snout in formaldehyde or alcohol because this will destroy the area of the tooth needed for age reading.

5. Complete a **Specimen Collection Label** for the snout and include the haul/set retrieval location on the back of the label. The label should have a bar code number on the back, which was affixed under clean, dry conditions. Include the label in the plastic bags with the snout, preferably placed in between the inner bag and the outer bag.

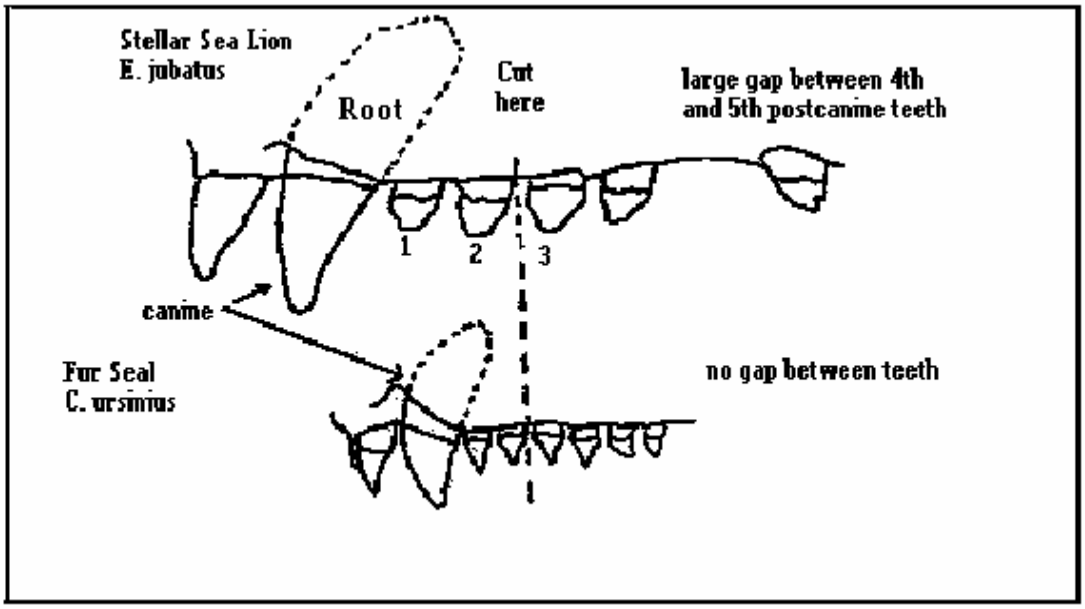
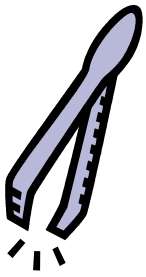


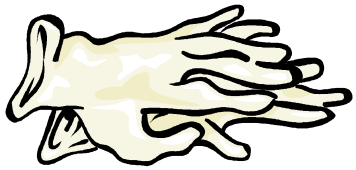
Figure 8-3: Removing Pinniped Canine Teeth

6. Record the length, sex, weight (if actual) on the **Biospecimen Form**. Record dissection type "3 -Snout" and document the bar code number attached to the back of the Specimen Collection Label in the Dissection Number column.
7. Complete a **Marine Mammal/Seabird/Sea Turtle Sighting and Interaction Form**.



Collecting Tissue from Cetaceans

Genetic information can be used to track and identify cetacean populations. Observers have access to cetacean carcasses and can easily collect tissue samples to be used for genetic analysis. Skin samples should be taken from all cetacean carcasses, regardless of their condition. Ceatacean samples are stored in Dimethyl Sulfoxide (DMSO), which is a hazardous substance (see Appendix R: Material Safety Data Sheet for DMSO on page 64 for Material Safety Data Sheet).



Warnings about DMSO: It has exceptional solvent properties for organic and inorganic chemicals and is widely used as an industrial solvent. DMSO has also been used to administer drugs topically. It is able to penetrate intact skin and will carry anything dissolved into it directly into the blood stream. Side affects from DMSO include nausea, headache, and skin rash. Further, since DMSO is a "carrier" chemical, it could deliver harmful substances into the bloodstream if they are present in impure DMSO or on the skin. Great care should be taken when handling DMSO. Never allow DMSO to contact skin. **Always wear the nitrile gloves provided when handling DMSO**.

Collect tissue samples from cetaceans using the following procedure:

1. Collect weight, length, and sex. For instructions, see "Sampling Marine Mammals Takes" on page 5
2. Exchange fishing gloves for the blue nitrile gloves provided (do not use latex gloves). The nitrile gloves help protect the tissue sample from DNA contamination as contamination from any source may compromise the sample.
3. Lightly scrape the sample area clean with a knife to remove fish slime and to reduce potential contamination of the sample. The sample can be collected from anywhere on the animal, but should preferably be taken from the back of the animal just posterior to the dorsal fin.
4. Using a sterile scalpel, cut out a strip of skin approximately 2 cm by 1 cm. Remove any excess blubber from the strip of skin.
5. Place the skin sample in the vial of DMSO provided. Try not to take a large sample, the skin sample must fit in the DMSO vial and be completely covered by the solution. There should be no more than one tissue sample per

vial. Store DMSO tissue samples at room temperature. Do not freeze.

6. If DMSO vials are not available, preserve tissue samples using one of the following methods.
    - Place the tissue sample in a sterile otolith vial and freeze it.
    - Place the tissue sample in a sterile otolith vial filled with a saturated salt solution or table salt and store at room temperature.
7. Record the length, sex, weight (if actual) on the **Biospecimen Form.** Record dissection type "4-Tissue" and the bar code number from the otolith vial in the Dissection Number column.
8. Complete a **Marine Mammal/Seabird/Sea Turtle Sighting and Interaction Form**.

Collecting Data from Tagged, Branded or Tattooed Marine Mammals

The National Marine Mammal Laboratory (NMML) and several other state and federal programs have projects tracking marine mammals. To do this they may place a tag, brand, or tattoo on the marine mammal. Radio tags have been affixed to Stellar sea lions and elephant seals as well as several species of cetacean. Inert ear tags have been placed on several species of pinnipeds. More common are brands and tattoos; usually the brand or tattoo can be found under the flippers or on the belly of the animal.

Collect data from tagged, branded or tattooed marine mammals using the following procedure:

1. If the marine mammal is dead, retrieve the tag and any research instrumentation/attachments affixed to the animal.

2. If the marine mammal is dead, record the length, sex, weight (if actual), and tag number on the **Biospecimen Form**.
3. If the animal is a sea lion or Northern fur seal, collect the canine teeth. See "Collecting Canine Teeth from Pinnipeds " on page 9
4. If the animal is a cetacean, collect a tissue sample. See "Collecting Tissue from Cetaceans" on page 10
5. For both live and dead tagged marine mammals, complete a **Marine Mammal/Seabird/Sea Turtle Sighting and Interaction Form.** Include the tag number and description (color, location, etc.) of the tag, brand or tattoo in the notes section.

Marine Mammal Interaction and Sighting Information

Marine mammal interaction and sighting information helps NMML determine the distribution and behaviors of marine mammals. When collecting marine mammal interaction and sighting information, pay close attention to both the physical characteristics of the animal and to its behavior.

Tip* Marine mammal sighting is the lowest priority observer responsibility. Sighting information should only be collected if it does not interfere with other observer data collection priorities.

Marine Mammal Physical Characteristics

Below are some general physical characteristics to take note of when collecting marine mammal information.

Cetaceans

- **Body shape** – Robust or slender, small or large?

- **Head shape** – Long or short, definite beak present, bulbous forehead?
- **Dorsal fin shape** – small or large, curvature, location on body?
- **Coloration** – spots, stripes, patches or mottling?
- **Scars and scratch marks** – pieces missing from fins, scratches or dents on body?
- **Orca saddle patches** – note exact size and shape of patch. Take a photo if possible. Researchers are able to identify individual Orcas by their saddle patch.
- **Shape and direction of blow** – bushy or tall blow, single or double blow, blow is straight up or goes forward?

Pinnipeds

- **Body shape** – Robust or slender, small or large?
- **Head shape** – Long or short snout, ears present?
- **Coloration** – spots, stripes, patches or mottling?
- **Scars and scratch marks** – pieces missing from flippers, scratches on body?

Marine Mammal Behaviors

Animal behavior is useful in assisting with accurate species identification. Descriptions of several standard cetacean and pinniped behaviors are listed below. Watch for these behaviors when collecting marine mammal sighting data.

Small Cetaceans

- **Bow riding**—Animals swim beside the bow or in the bow wave of a moving ship.

- **Leaping entirely out of the water**—Animal jumps fully clear of the surface of the water (as opposed to merely breaking the surface of the water), not for forward locomotion but for other reasons.
- **Porpoising**—Animal raises its body to be nearly or fully out of the water while traveling forward at a fast rate of speed, usually in a fluid, arching motion.
- **Rooster tailing**—Animal surfaces at high speed creating a spray of water in front and over the top of the animal which looks like a rooster's tail. Usually seen only in Dall's porpoise.
- **Slow rolling**—Animal comes to the surface to breathe, with the blowhole and dorsal area usually showing, and then rolls back underwater.

Large Cetaceans

- **Blow visible from a distance**—Blow can be seen from more than 500 meters away. Usually only seen in certain large cetaceans.
- **Breaching**—The whale accelerates forward underwater and then jumps free of the water, sometimes fully clearing the water's surface, and then lands on the surface of the water, creating a large splash. Used for Orca sized cetaceans or larger.
- **Flipper slapping**—Whale floats or swims at the surface, turns on its side and slaps one pectoral fin against the water, either once or several times in quick succession.
- **Group feeding**—Seen primarily in humpback whales, when they coordinate feeding by lunging out of the water with their mouths open, engulfing fish and water.

- **Lob tailing**—Whale raises its tail flukes up out of the water and slaps them down against the surface with great force. This may occur once or be repeated many times.
- **Spy hopping**—Whale is vertical or upright in the water and raises its head up out of the water, usually with its eyes showing.
- **Tail raised on dive**—When diving, the whale's entire tail lifts completely above the water before going underwater.
- **Side and stern wake riding**—Whale is riding in the wake created amidships along the side of the vessel, or the wake created by the stern.

Pinnipeds

- **Jug handle**—Seal or sea lion floats on its side with one front flipper and one rear flipper above the water, creating what looks like a handle.
- **Porpoising**—Pinniped is swimming fast, jumping at least partially out of the water in fluid, arching motions. This swimming pattern resembles that of dolphins or porpoises seen at a distance.
- **Rafting**—A group of pinnipeds resting at the surface together.
- **Spooked from haul out**—Pinnipeds which had been resting on a beach, rocks or ice dove into the water due to your vessel's interaction with them
- **Vocalizing**—Pinniped making directed noises at you or at another pinniped.

Marine Mammal Data Collection Forms

There are three forms to use when collecting marine mammal information.

1. Biospecimen Form.
    - Use this form to record length, sex, and weight information from dead marine mammals.
    - Use this form when the canine teeth or a tissue sample is collected from a dead marine mammal.
2. Marine Mammal/Seabird/Sea Turtle Sighting and Interaction Form.
    - Use this form to record marine mammal interaction or sighting information.
3. Specimen Collection Label.
    - Use this form to record data when sea lion or Northern fur seal canine teeth (snouts) have been collected.

The **Marine Mammal/Seabird/Sea Turtle Sighting and Interaction Form** should be completed whether or not the marine mammal is alive or dead and whether the animal has been brought on-board the fishing vessel or not. The **Biospecimen Form** only needs to be completed for dead marine mammals on-board a fishing vessel.

Biospecimen Form Instructions

Complete the Biospecimen Form (See Figure 8-4) any time length, sex or actual weight information is collected from a dead marine mammal. Also complete this form if canine teeth or tissue samples have been collected.

- **Haul Number –** Record the number of the haul that the sample came from.

- **Date –** Record the date as MM/DD/YY.

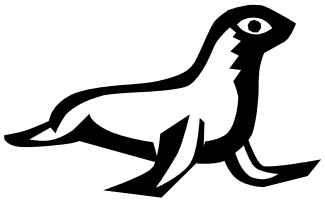
- **Trip Number –** Record the trip number generated by the database system.

- **USCG # –** Record the USCG vessel number (if they have one). If the vessel does not have a USCG number, leave this field blank

- **Catch # -** Record the number that corresponds to the catch category on the Catch Form.

- **Catch Category –** Record in capital letters the catch category the species is in as recorded on the Catch Form. .

Tip* Marine mammals are usually sampled as their own Catch Category (ZMRM).



- **R or D –** Record whether the sample came from an **R** – Retained or **D** – Discarded catch category

- **Species Name -** Record the **common name** of the species. This column must be filled in with the species name. Do not only enter the species code! The common name listed on the paperwork must match the common name used in the database.

- **Species Code** - Record the species code of the corresponding species. See Appendix C: Marine Mammal and Sea Turtle Species List and Codes on page 17 for a list of marine mammals species codes.

- **Method –** Record the Biospecimen Sampling Method used.
  - 6 - Outside and Nonrandom
  - 7 - Outside and Random
  - 8 - Inside and Nonrandom
  - 9 - Inside and Random

- **Sex –** Record **M** – Male, **F** – Female, or **U** – Unknown (individuals where the sex cannot be determined). If you

did not attempt to sex the individual, LEAVE COLUMN BLANK.

- **Length –** Record the length of the marine mammal in whole centimeters.

- **Weight –** Record the weight of the marine mammal in pounds.

- **Viability** - Do not record any viability information for marine mammals.

- **Maturity Stage** – Do not record maturity stage information for marine mammals.

- **Dissection Type –** Record the type of dissection that was taken.

  1– Otoliths
  2 – Scales
  3 – Snout
  4 – Tissue

- **Barcode # –** Record the barcode number of the vial, envelope, or other container that the second dissected part was placed in.

- **Dissection Type – If two dissections were taken from the same individual**, record the second type of dissection that was taken.

  1– Otoliths
  2 – Scales
  3 – Snout
  4 – Tissue

- **Barcode # – If two dissections were taken from the same individual**, record the barcode number of the vial, envelope, or other container that the dissected part was placed in.

- **Comments –** Record the tag number if the marine mammal was tagged. Document any important information regarding the marine mammal.

- **KP Length –** Sum up all of the length **by species** and note total of all lengths in the KP Length (keypunch length) column.

- **KP Frequency -** Sum up all of the frequencies **by species** and note total of all frequencies in KP Freq (keypunch frequency) column.

Haul # ☐☐ **BIOSPECIMEN FORM** Page ____ of ____

Date ☐☐☐☐☐☐ Trip Number ☐☐☐☐☐ USCG # ☐☐☐☐☐☐☐

Catch #	Catch Category	R or D	Species Name	Species Code	Method	Sex	KP Length / KP Weight	Length	Weight	Viability	Maturity stage	Dissection Type	Barcode #	Dissection Type	Barcode #	Comments (includi

Method : 6-Outside and Nonrandom 7-Outside and Random 8-Inside and Nonrandom 9-Inside and random

Dissection Type: 1 - Otoliths 2 - Scales 3 - Snouts 4 - Tissue

Biological Sampling Form
January 2

Figure 8-4: Biospecimen Form

Specimen Collection Label Instructions

Complete the Specimen Collection Label when a pinniped snout has been collected. See (See Figure 8-5).

- **Vessel Name** – Record the name of the vessel on which the specimen was collected.
- **Haul Number** – Record the haul number from which the specimen was collected.
- **Trip Number** – Record the trip number generated by the database system.
- **Date** – Enter the date that the haul/set was retrieved as MM/DD/YY.
- **Species Identification** – Record the common name of the species.
- **Entered As** – Record the species name entered into the database, if this differs from the above (e.g. you entered it as marine mammal, unidentified but believe it was a California Sealion).
- **Depth (FM)** – Record the retrieval depth of the haul/set in fathoms.
- **Length (cm)** – Record the length of the marine mammal, in centimeters.
- **Weight (LB)** – Record the weight of the marine mammal, in pounds.
- **Sex** – Record the sex of the marine mammal.
- **Observer Name** – Record your first and last name.

- **B**ar **Code Sticker** – When collecting snouts, be sure to affix a WCGOP bar code sticker to the back of the specimen label in order to uniquely identify the specimen.

SPECIMEN COLLECTION LABEL
West Coast Groundfish Observer Program
DOC/NOAA/NMFS/NWFSC/FRAMD
2725 Montlake Blvd. Seattle, WA 98112
(use pencil ONLY!)
VESSEL HAUL
NAME_____ NUMBER_____
TRIP
NUMBER_____ DATE_____
SPECIES IDENTIFICATION_____
ENTERED AS_____
DEPTH(FM)_____ LENGTH(CM)_____
WEIGHT(LB)_____ SEX (if applicable)_____
OBSERVER NAME_____

Figure 8-5: Specimen Collection Label

Marine Mammal/Seabird/Sea Turtle Sighting Form Instructions

Complete the Sighting and Interaction Form for all marine mammal interactions and sighting information. Fill out the form as completely as possible (See Figure 8-7 and Figure 8-8). The more information you provide, the more useful the data is to NMML in determining species ranges and documenting interactions.

- **Trip Number** - Record the number generated by the database.
- **USCG #** - Record the USCG vessel number. If the vessel does not have a USCG number, leave this field blank.
- **Observer** - Record your first and last name.

- **Vessel** - Record the full name of the vessel.
- **Date** - Record the date as MM/DD/YY.
- **Time** - Record the time that the animal was first seen in military time HH:MM.
- **Latitude** - Record the latitude (in degrees, minutes, 1/10th of a minute) where the animal was first seen.
- **Longitude** - Record the longitude (in degrees, minutes, 1/10th of a minute) where the animal was first seen.
- **Species** - Record the **common name** of the species. Do not enter the species code!!
- **Body Length Estimate** - Record a check mark in the box that best describes the length of the individual(s) observed.
- **Sighting Conditions** - Record a check mark in the box that best describes the overall sighting conditions (excellent, good, fair, poor).
- **Beaufort** - Record the Beaufort sea conditions value. A description of each Beaufort value is listed on the back of the form.
- **Surface Water Temperature** - Record the surface water temperature in degrees centigrade.
- **Confidence** - Record a check mark in the box that best describes your confidence (sure, likely, unsure) in your species identification.
- **Closest Approach** - Note the distance in meters of the closest approach of the animal to the vessel.
- **Number Sighted (Best)** - Record the best estimate of the total number of individuals observed.

- **Number Sighted (Minimum)** - Record the best estimate of the minimum number of individuals observed.

- **Number Sighted (Maximum)** - Record the best estimate of the maximum number of individuals observed.

- **Narrative and Sketches** - Record physical and behavioral information about the animal(s). This section is the most important section of the form and should be completed as fully as possible. A short list of key features to note is listed below:

  General size and shape of body
  Size and shape of snout
  Color patterns on the fins and body
  Size and shape of the tail and flippers
  Scars and scratch marks
  Size and shape of dorsal fin and its position on body
  Shape and direction of blow
  Location of the blowhole
  Animal behaviors

- **Behaviors Seen** - Circle all of the behaviors observed during the sighting. Document these behaviors in the Notes section in the database.

- **Fishing Interactions** - Circle all of the interactions observed between the animal and fishing vessel.

- **MM/ST/ST Silhouettes (Back of Form)**- Circle the silhouette of the marine mammal that looks the most like the marine mammal observed.

- **Photos/Video (Back of Form)** - Record the barcode number from the disposable camera and frame number(s) of the picture(s).

MARINE MAMMAL/SEABIRD/SEA TURLE INTERACTION AND SIGHTING FORM

Trip Number ☐☐☐☐☐☐ **USCG #** ☐☐☐☐☐☐☐

Observer _____

Vessel _____

Date ☐☐ ☐☐ ☐☐ MM/DD/YY

Time ☐☐:☐☐ HH:MM

Latitude ☐☐° ☐☐.☐ N

Longitude 1☐☐° ☐☐.☐ W

Sighting Condition

☐ Excellent ☐ Fair

☐ Good ☐ Poor

Beaufort Scale ☐

Water Temp ☐☐ °C

Confidence ☐ Sure ☐ Likely ☐ Unsure

Species (Common Name): _____

Body Length ☐ <3 m (<10') ☐ 3-8 m (10-25') ☐ 8-16 m (25-50') ☐ 16-26 m (50-80') ☐ >26 m (>80')

Closest Approach ☐☐☐☐ M

Number Sighted (Best) ☐☐☐☐

Number (Min) ☐☐☐☐

Number (Max) ☐☐☐☐

Notes & Identifying Characteristics

Behaviors

Small Cetaceans
Bow riding
Leaping entirely out of water
Proposing
Rooster-tailing
Slow rolling

Large cetaceans
Blow visible for a distance
Breaching
Flipper Slapping
Group Feeding
Lob-tailing
Spy-hopping
Tail raised on dive
Side wake riding
Stern wake riding

Pinnipeds
Jug handle
Porpoising
Rafting
Spooked from haulout
Vocalizing

Sea Turtles
Swimming
Diving
Floating/Basking
Foraging
Breathing

Fishing Interactions

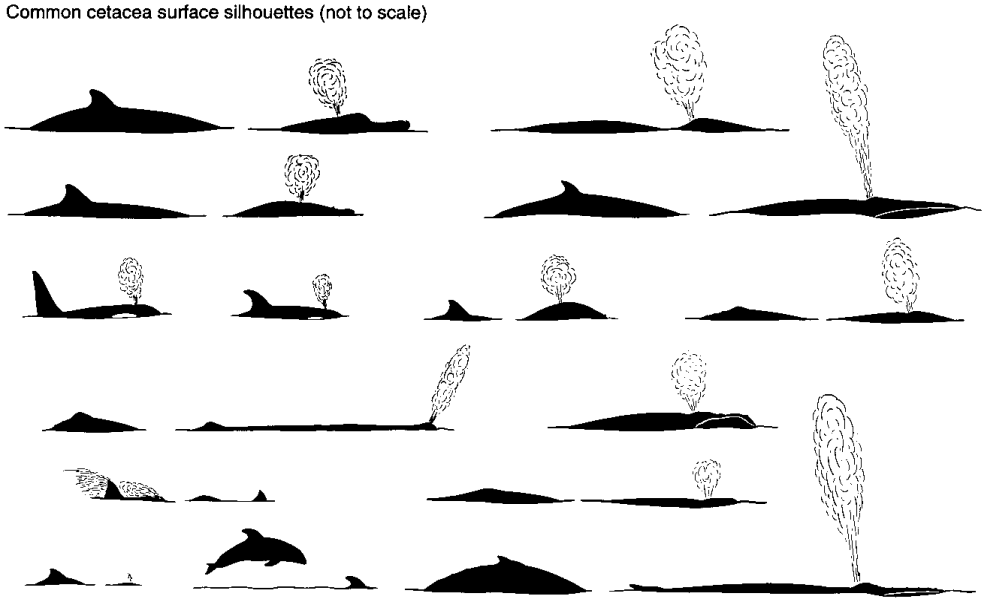
1 - Feeding on Discards
2 - Feeding from Gear
3 - Feeding on Catch
4 - Contact with Vessel
5 - Contact with Gear
6 - Trailing Gear
7 - Deterrence Used
8 - Boarded Vessel
9 - Swimming near Gear
10 - Killed by Gear
11 - Killed by Propeller
12 - Previously Dead
13 - Lethal removal (trailing gear)
14 - Lethal removal (not trailing gear)
15 - Entangled in Gear (not trailing gear)
16 - Entangled in Gear (trailing gear)
17 - Other
18 - Unknown

(circle all that apply)

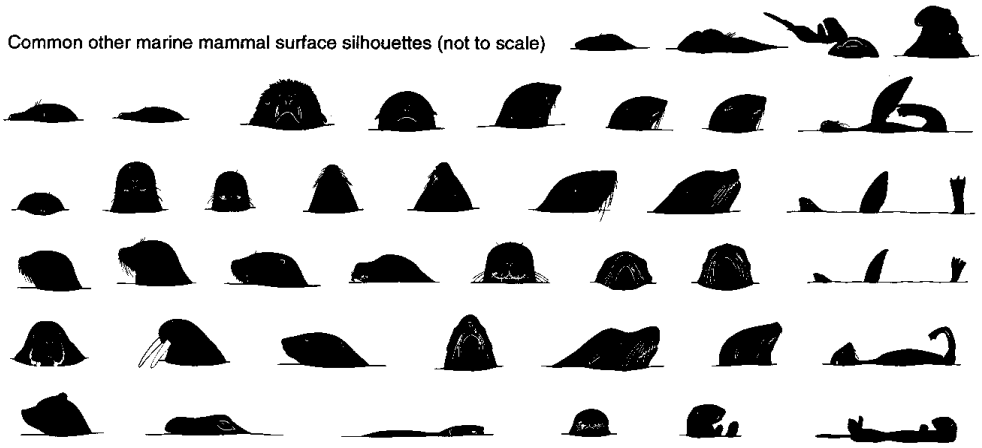
WCGOP MM/SB/ST Form v.4 January 2006

Figure 8-6: MM/SB/ST Form (Front)

Common cetacea surface silhouettes (not to scale)



Common other marine mammal surface silhouettes (not to scale)



These are silhouettes of most genera of marine mammals known to occur in and around North America. Subtilties exist between closely related genera. Care should be taken in identifying species. Assessing one's level of confidence with copious notes and observations is more valuable than a brief misidentification.

Photo/Videos

Barcode # _____

Frames _____

BEAUFORT SCALE (Sea Condition)		*wind*	*wave height*	
0	glassy, calm	0 , 1 kts	calm	
1	light ripple	1 < 4 kts	light air	1/4'
2	small wavelets	4 < 7 kts	light breeze	1/2'
3	scattered whitecaps	7 < 11 kts	gentle breeze	2'
4	small waves, frequent whitecaps	11 < 17 kts	moderate breeze	4'
5	moderate waves, many whitecap	17 < 22 kts	fresh breeze	6'
6	all whitecaps, some spray	22 < 28 kts	strong breeze	10'
7	breaking waves, spindrift	28 < 34 kts	near gale	14'
8	medium high waves, foamy streaks	34 < 41 kts	gale	18'
9	high waves, dense foamy streaks	41 < 48 kts	strong gale	22'
10-12	not meaningful (time to go home)			

Figure 8-7: MM/SB/ST Form (Back)

II. Seabirds

Introduction

Seabird mortalities associated with commercial fisheries are estimated at 300,00 to one million per year worldwide. Most commercial fisheries do not monitor seabird bycatch, making it difficult to accurately estimate mortality rates or to predict the long-term effects of fishing on seabird populations. The NMFS is collaborating with the U.S. Fish and Wildlife Service (USF&WS) to gather data on fishery related mortality of seabirds in the West Coast groundfish fisheries.

Seabird mortalities may result from direct interactions with fishing gear or through indirect, or incidental, fishery interactions. Indirect seabird mortalities range from individual strandings on vessel decks to flocks of birds hitting the ship ("bird storms"). Such vessel/bird interactions occur most frequently when birds become disoriented by bright lights used by vessels at night or during inclement weather. Observers are one of the few sources of data on this kind of mortality.

If live birds are caught or are found on deck note any bands or tags prior to releasing the bird (many species are unable to fly off of a deck and will need to be dropped over the rail). Note that thoroughly wet birds cannot fly or keep themselves warm. If possible, they should be allowed to dry out in a sheltered spot before being released.

Observer data also provide a valuable source of information on banded birds, critical for the management of migratory species. The Bird Banding Laboratory (BBL) of the U.S. Geological Survey and the Banding Office of the Canadian Wildlife Service jointly manage the bird-banding program in North America. Every year management agencies, research institutions, and private individuals, combine to band nearly one million game and non-game birds. Analysis of banding data allows for calculation of important population parameters such as survival and harvest rates of migratory species. Band recovery rates are frequently low and fishery observers can play a tremendous role in increasing the recapture rate of banded birds and contributing to the data available for seabird population management.

Endangered, Threatened and Banded Seabirds

Three species of seabirds listed as endangered and one species listed as threatened (hereafter referred to as 'species of interest') may be encountered by West Coast groundfish Observers.

Endangered Species

- Short-Tailed Albatross

  In 2001 the population estimate for short-tailed albatross was approximately 1600 individuals. These birds occur offshore and are the most likely of the three endangered species to come in contact with commercial fishing gear.

- California Brown Pelican

  California Brown Pelicans are generally sighted inshore. These birds are not likely to be taken by commercial groundfish gear.

- California Least Tern

  California Least Terns are generally sighted inshore. These birds are not likely to be taken by commercial groundfish gear.

Threatened Species

- Marbled Murrelet

  Most incidental takes of Marbled Murrelets occur in gillnet fisheries which are not monitored by the WCOP.

Banded Birds

Seabirds may be marked with:

- Uniquely coded metal or plastic leg bands
- Nasal markers or radio tags

Seabird Data Collection Priorities

Seabird data collected by observers falls into two major categories:

- Seabird mortality (caused directly by fishing activities or incidental takes)
- Sightings of species of interest and banded birds

Due to potential time constraints on data collection, seabird information is categorized as **Essential,** collected at all times and **Non-Essential,** collected whenever time permits.

Essential Information:

- Mortality resulting directly from fishing activities
- Incidental mortality of Species of Interest or Banded Birds
- Sightings of Species of Interest

Non-Essential Information:

- Sightings of Banded Birds
- Incidental mortality of birds that are not banded or one of the species of interest

Recording Seabird Data

Three forms are used for documenting seabird data in the WCGOP. These are the Marine Mammal/Seabird/Sea Turtle (MM/SB/ST) Interaction and Sighting Form, the Catch Form, and the Species Composition Form.

Information on **seabird mortality** associated with fishing activities is collected whether the seabird is part of a species composition sample or not. Such takes are always recorded on the **MM/SB/ST Interaction and Sighting Form** and the **Catch Form**. If the seabird is part of a species

composition sample, it is recorded on the **Species Composition Form** as well.

Seabird sighting and interaction data for priority species and banded birds are recorded only on the **MM/SB/ST Interaction and Sighting Form**. When documenting takes or sightings of species of interest or banded individuals of any species always include a thorough description including size, plumage, description of bill, and any other distinguishing characteristics.

Incidental takes of non-threatened species occurring outside of fishing activities should be recorded whenever possible. This data is recorded only on the **MM/SB/ST Interaction and Sighting Form**.

Catch Form

- Record any takes that are part of a haul, including hauls where an actual weight is not obtained for the bird.

Species Composition Form

- Record any takes that are part of a haul where an actual weight is obtained for the bird.

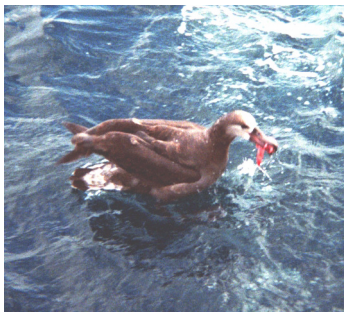
MM/SB/ST Interaction and Sighting Form

- Record all mortalities.
- Record all sightings of species of interest or banded birds.

Documenting Takes Resulting from Fishing Activities

Information on seabird mortality directly related to fishing activities is collected primarily as part of species composition sampling. Instructions for species composition sampling are detailed in Chapter 4, "Trawl Sampling", or Chapter 5, "Fixed Gear Sampling" or Chapter 6, "Fixed Gear Sampling on Small Boats". The instructions provided in the seabird data collection protocol below supplement these chapters.

1. Identify each bird to the species level whenever possible. If the species cannot be determined, identify birds to the highest taxonomic level possible. Whenever possible, take photos of birds to verify identification, even if you are certain of the ID.
2. If the bird has leg bands, nasal tags, or radio tags, collect the tags being careful not to damage any identifying information printed on them. If there are multiple leg bands, note which color band is on which leg as this will often identify particular individuals.
3. Weigh each seabird species individually (remember to drain as much water as possible from the carcasses). Birds are much lighter than they appear. Individual birds rarely weigh over 10 lbs. (and only the larger species, such as albatross, would be that heavy).



4. If birds drop off of longline gear or are thrown overboard before being weighed, identify them as best possible and use an average weight from hauls where an actual weight was obtained for that species or group. If no other birds were caught from this group, visually estimate the weight as closely as possible.
5. If there is an actual weight for the seabird species, record common name, species code, number taken, and weight information on the Species Composition Form. The WCGOP codes for each species or species group can be found on the Seabird Species List (Appendix D: Seabird Species List and Codes on page 19).
6. If there is only a visually estimated weight for the seabird species, create an XBRD Catch Category on the Catch Form. Record the estimated weight, a weight method of 4 - Visual Estimate, and write the species name in the comments section.
7. Complete a MM/SB/ST Interaction and Sighting Form for each species of seabird encountered. In the notes

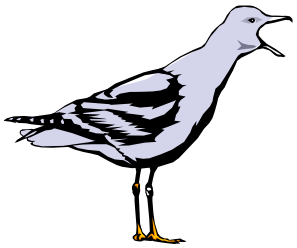
section include identifying characteristics and all information from the band or tag, if one was collected.

8. **If a species of interest is taken, notify NMFS immediately.** Do NOT wait until debriefing. Take photos of the bird to verify identification if possible.

Documenting Seabird Interactions and Sightings

Incidental seabird takes are the primary vessel interaction data of interest to scientists. In addition, sighting and interaction information on priority species and banded birds helps researchers track seabird populations and provides some insight into seabird / vessel interactions. When collecting incidental take or sighting data follow the protocol below:

1. Identify each bird to the species level whenever possible. If the species cannot be determined, identify birds to the highest taxonomic level possible. Record key features (color, size, etc.) in the notes section of the **MM/SB/ ST Interaction and Sighting Form**.
2. Note seabird behavior and any contact with the vessel or the vessel's gear. Record key behaviors in the notes section of the **MM/SB/ST Interaction and Sighting Form**.
3. If the bird has leg bands, nasal tags, or radio tags, note placement, color, and any other characteristics that might help to identify the tag. If there are multiple leg bands, note which color band is on which leg as this will often identify particular individuals.
4. Complete a **MM/SB/ST Interaction and Sighting Form** for each seabird species encountered.



MM/SB/ST Interaction and Sighting Form Instructions

All incidental seabird takes and sightings of species of interest or banded birds must be recorded on a Seabird Sighting Form. "MM/SB/ST Form (Front)" on page 37 and "MM/SB/ST Form (Back)" on page 38

- **Trip Number** - Record the number generated by the database.
- **USCG #** - Record the USCG vessel number. If the vessel does not have a USCG number, leave this field blank.
- **Observer** - Record your first and last name.
- **Vessel** - Record the full name of the vessel.
- **Date** - Record the date as MM/DD/YY.
- **Time** - Record the time that the animal was first seen in military time HH:MM.
- **Latitude** - Record the latitude (in degrees, minutes, 1/10th of a minute) where the animal was first seen.
- **Longitude** - Record the longitude (in degrees, minutes, 1/10th of a minute) where the animal was first seen.
- **Species** - Record the **common name** of the species. Do not enter the species code!!
- **Body Length Estimate** - Record a check mark in the box that best describes the length of the individual(s) observed. This should always be <3m for seabirds.
- **Sighting Conditions** - Record a check mark in the box that best describes the overall sighting conditions (excellent, good, fair, poor).

- **Beaufort** - Record the Beaufort sea conditions value. A description of each Beaufort value is listed on the back of the form.
- **Surface Water Temperature** - Record the surface water temperature in degrees centigrade.
- **Confidence** - Record a check mark in the box that best describes your confidence (sure, likely, unsure) in your species identification.
- **Closest Approach** - Note the distance in meters of the closest approach of the animal to the vessel.
- **Number Sighted (Best)** - Record the best estimate of the total number of individuals observed.
- **Number Sighted (Minimum)** - Record the best estimate of the minimum number of individuals observed.
- **Number Sighted (Maximum)** - Record the best estimate of the maximum number of individuals observed.
- **Narrative and Sketches** - Record physical and behavioral information about the animal(s). This section is the most important section of the form and should be completed as fully as possible. A short list of key features to note is listed below:

  General size and shape of body
  Size, shape, and color of bill
  Color pattern of plumage
  Color of feet
  Animal behaviors

- **Behaviors Seen** - Circle all of the behaviors observed during the sighting. Document these behaviors in the Notes section in the database.

- **Fishing Interactions** - Circle all of the interactions observed between the animal and fishing vessel.
- **MM/ST/ST Silhouettes (Back of Form)**- This does not need to be completed for seabirds.
- **Photos/Video (Back of Form)** - Record the barcode number from the disposable camera and frame number(s) of the picture(s).

MARINE MAMMAL/SEABIRD/SEA TURLE INTERACTION AND SIGHTING FORM

Trip Number ☐☐☐☐☐☐ **USCG #** ☐☐☐☐☐☐☐

Observer _____ **Sighting Condition**

Vessel _____ ☐ Excellent ☐ Fair

Date ☐☐ ☐☐ ☐☐ MM/DD/YY ☐ Good ☐ Poor

Time ☐☐:☐☐ HH:MM **Beaufort Scale** ☐

Latitude ☐☐° ☐☐.☐ N **Water Temp** ☐☐ ° C

Longitude 1☐☐° ☐☐.☐ W **Confidence** ☐ Sure ☐ Likely ☐ Unsure

Species (Common Name): _____

Body Length ☐ <3 m (<10') ☐ 3-8 m (10-25') ☐ 8-16 m (25-50') ☐ 16-26 m (50-80') ☐ >26 m (>80')

Closest Approach	Number Sighted (Best)	Number (Min)	Number (Max)
☐☐☐☐ M	☐☐☐☐	☐☐☐☐	☐☐☐☐

Notes & Identifying Characteristics

Behaviors

Small Cetaceans
Bow riding
Leaping entirely out of water
Proposing
Rooster-tailing
Slow rolling

Large cetaceans
Blow visible for a distance
Breaching
Flipper Slapping
Group Feeding
Lob-tailing
Spy-hopping
Tail raised on dive
Side wake riding
Stern wake riding

Pinnipeds
Jug handle
Porpoising
Rafting
Spooked from haulout
Vocalizing

Sea Turtles
Swimming
Diving
Floating/Basking
Foraging
Breathing

Fishing Interactions

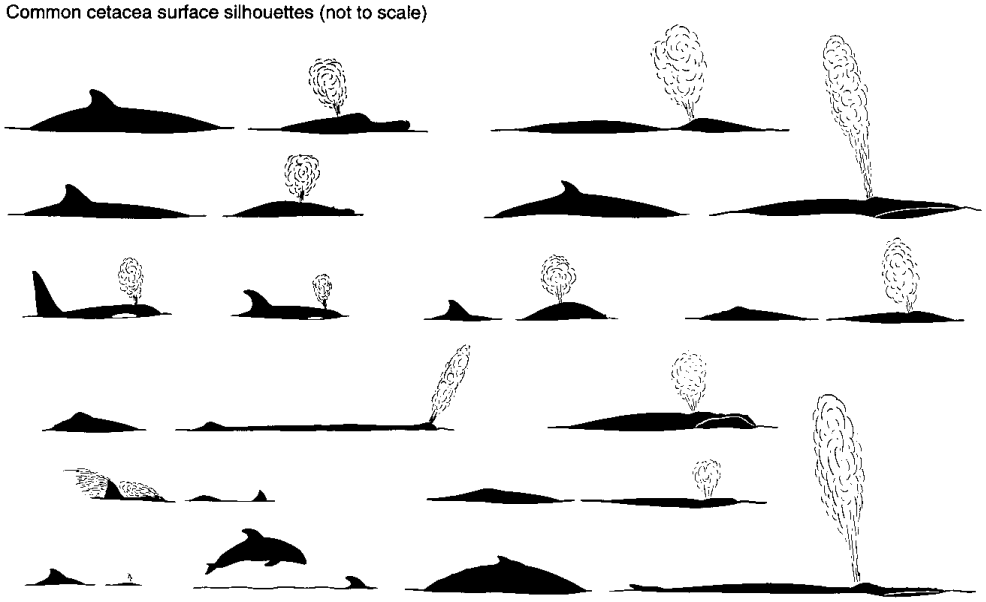
1 - Feeding on Discards
2 - Feeding from Gear
3 - Feeding on Catch
4 - Contact with Vessel
5 - Contact with Gear
6 - Trailing Gear
7 - Deterrence Used
8 - Boarded Vessel
9 - Swimming near Gear
10 - Killed by Gear
11 - Killed by Propeller
12 - Previously Dead
13 - Lethal removal (trailing gear)
14 - Lethal removal (not trailing gear)
15 - Entangled in Gear (not trailing gear)
16 - Entangled in Gear (trailing gear)
17 - Other
18 - Unknown

(circle all that apply)

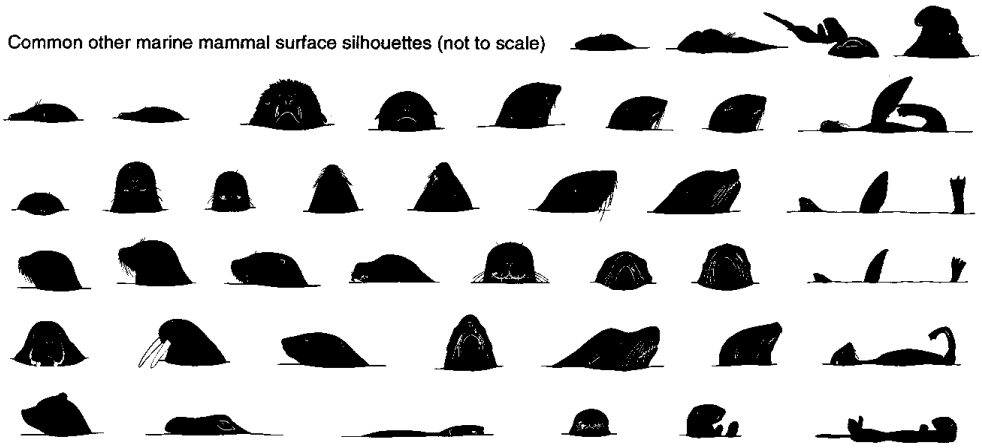
WCGOP MM/SB/ST Form v.4 January 2006

Figure 8-8: MM/SB/ST Form (Front)

Common cetacea surface silhouettes (not to scale)



Common other marine mammal surface silhouettes (not to scale)



These are silhouettes of most genera of marine mammals known to occur in and around North America. Subtilties exist between closely related genera. Care should be taken in identifying species. Assessing one's level of confidence with copious notes and observations is more valuable than a brief misidentification.

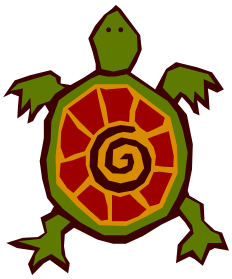
Photo/Videos

Barcode # _____

Frames _____

BEAUFORT SCALE (Sea Condition)		*wind*	*wave height*	
0	glassy, calm	0 , 1 kts	calm	
1	light ripple	1 < 4 kts	light air	1/4'
2	small wavelets	4 < 7 kts	light breeze	1/2'
3	scattered whitecaps	7 < 11 kts	gentle breeze	2'
4	small waves, frequent whitecaps	11 < 17 kts	moderate breeze	4'
5	moderate waves, many whitecap	17 < 22 kts	fresh breeze	6'
6	all whitecaps, some spray	22 < 28 kts	strong breeze	10'
7	breaking waves, spindrift	28 < 34 kts	near gale	14'
8	medium high waves, foamy streaks	34 < 41 kts	gale	18'
9	high waves, dense foamy streaks	41 < 48 kts	strong gale	22'
10-12	not meaningful (time to go home)			

Figure 8-9: MM/SB/ST Form (Back)



III. Sea Turtles

Introduction

Five species of sea turtles inhabit the waters off the West Coast of the United States. Observers collect species, size, and condition information from the sea turtles they encounter, as well as sightings information. Other scientists record data on the movements and preferred habitats of the various populations of sea turtles. These data are critical to the development of conservation and recovery strategies for these marine reptiles.

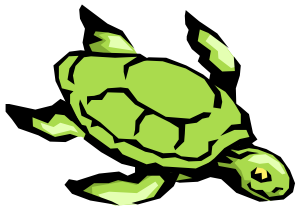
Documenting Sea Turtle Interactions

It is unlikely that a turtle will be caught in a West Coast fishery. In the rare event that a sea turtle is encountered, collect the following information:

1. Identify the sea turtle to species. Figure 8-10 is a sea turtle identification flow chart for Eastern Pacific Marine Turtles.
2. To identify the sea turtle, collect the following information:
    - Count the number of costal scutes on the left side of the carapace.
    - Count the number of costal scutes on the right side of the carapace.
    - Count the number of scutes on the midline of the carapace.
    - Count the number of scutes on either side of the plastron.
    - Check to see if there are overlapping scutes on the dorsal surface.
    - Check to see if there are pores on the ventral inframarginal scutes.
    - Check to see if the turtle has one pair of prefrontal scales.

- Check to see if the turtle lacks a bony shell.
- Check the dorsal coloration of the turtle.

3. Determine the carapace length by measuring the distance between the center edge of the nuchal scute and the posterior edge of the carapace, following the curvature of the dorsal center line. If there is a notch between the two posterior marginal scutes, measure the distance to the rear most point of the scutes. For turtles with a keel running down the center of the carapace (leatherbacks, and juvenile olive ridleys and loggerheads), measure to one side of the median keel, not on top of it.
4. Determine the carapace width by measuring the maximum distance between the lateral edges of the carapace. Measure over the curvature of the shell.
5. Determine the tail length by measuring the distance between the posterior most point of the carapace and the tip of the tail. If the stretched tail does not extend beyond the carapace, the length is "0000".



6. Note the condition of the turtle as follows:
   - **Previously Dead** – The turtle was already dead when it was sighted or captured.
   - **Released Unharmed** – The turtle was returned to the sea alive and uninjured.
   - **Released Injured** – The turtle was injured as a result of fishing operations or by vessel personnel. "Injured" is an animal removed from the gear with obvious physical injury or with gear attached.
   - **Killed Accidentally** – The turtle died due to injuries incurred during fishing operations or was returned to the sea while comatose.
   - **Escaped** – The turtle left the gear or deck unaided after capture or entanglement, with no apparent injuries.
   - **Treated as Catch** – The turtle was not previously dead and was sacrificed for market, table or other use.

- **Other/Unknown** – The final fate of the turtle involved in the haul/set is unknown or whose condition after leaving the gear or deck was unobserved.

7. Look for tags and record all data from the tag. If the turtle is dead, remove the tag.
8. Take one photo of the head and several additional photos of different angles of the whole turtle showing the costal and vertebral scutes.
9. Record data on the **MM/SB/ST Sighting and Interaction Form**.
10. Record all data on the **Sea Turtle Life History Form**.

Sea Turtle Sighting

Complete a **MM/SB/ST Sighting and Interaction Form** for all sea turtle sightings. Circle the appropriate behavior along the right-hand side of the page. Sea Turtle behaviors are:

- **Swimming** - Turtle moving along relatively level at or just below surface of the water.
- **Diving** - Turtle seen at or near surface which suddenly submerges or is seen disappearing in to the deep.
- **Basking/Floating** - Turtle seen floating live at surface, usually only back seen but sometimes one or both flippers may be raised - may be followed by diving once boat is detected.
- **Foraging** - Turtle seen with food in mouth or diving in area of high abundance of jellies or pelagic invertebrates (or slicks).
- **Breathing** - Turtle seen at surface, head out of water with mouth slightly open (no food) - usually followed by floating and another breath or swimming or diving.

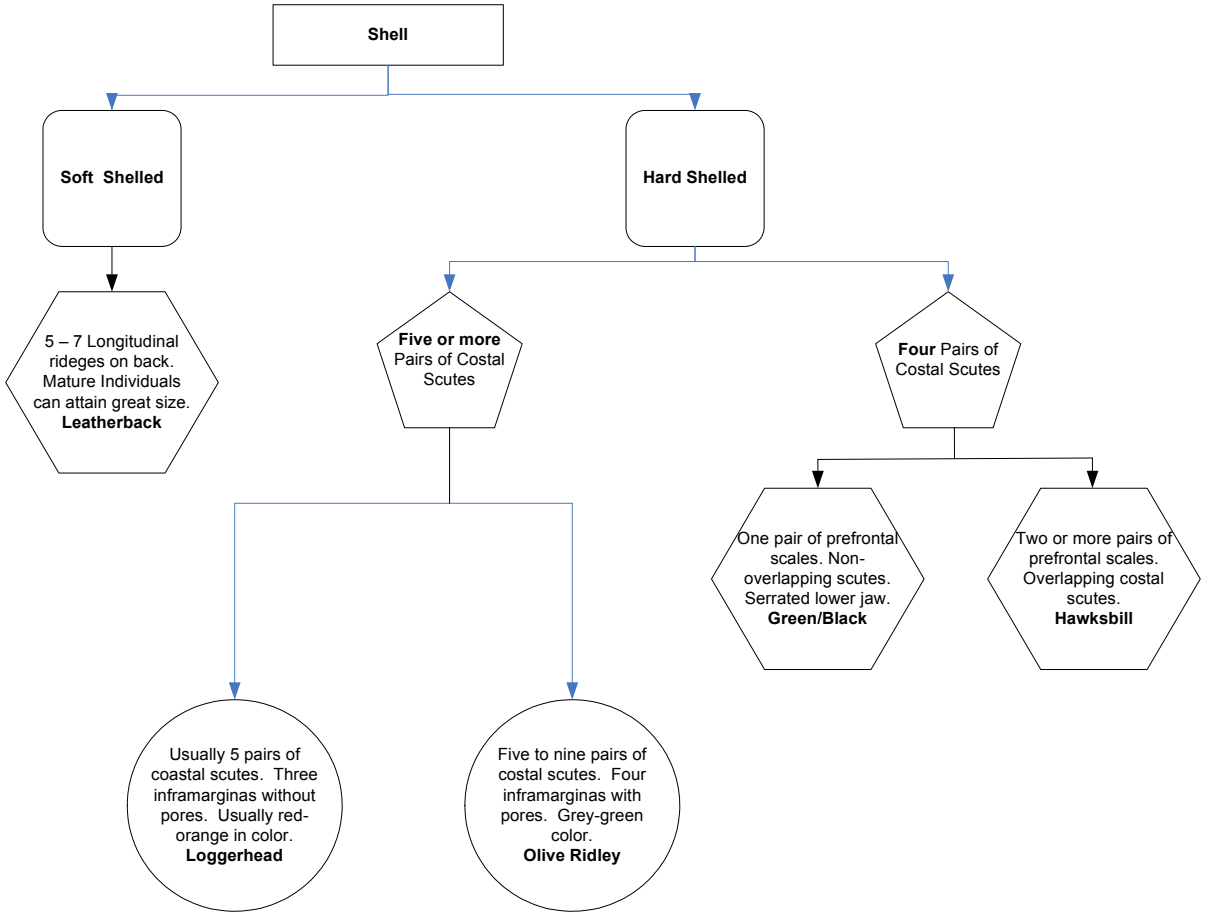


Figure 8-10: Sea Turtle ID Flow Chart

Marine Mammal/Seabird/Sea Turtle Sighting and Interaction Form

- **Trip Number** - Record the number generated by the database.
- **USCG #** - Record the USCG vessel number. If the vessel does not have a USCG number, leave this field blank.
- **Observer** - Record your first and last name.
- **Vessel** - Record the full name of the vessel.
- **Date** - Record the date as MM/DD/YY.

- **Time** - Record the time that the animal was first seen in military time HH:MM.
- **Latitude** - Record the latitude (in degrees, minutes, 1/10th of a minute) where the animal was first seen.
- **Longitude** - Record the longitude (in degrees, minutes, 1/10th of a minute) where the animal was first seen.
- **Species** - Record the **common name** of the species. Do not enter the species code!!
- **Body Length Estimate** - Record a check mark in the box that best describes the length of the individual(s) observed.
- **Sighting Conditions** - Record a check mark in the box that best describes the overall sighting conditions (excellent, good, fair, poor).
- **Beaufort** - Record the Beaufort sea conditions value. A description of each Beaufort value is listed on the back of the form.
- **Surface Water Temperature** - Record the surface water temperature in degrees centigrade.
- **Confidence** - Record a check mark in the box that best describes your confidence (sure, likely, unsure) in your species identification.
- **Closest Approach** - Note the distance in meters of the closest approach of the animal to the vessel.
- **Number Sighted (Best)** - Record the best estimate of the total number of individuals observed.
- **Number Sighted (Minimum)** - Record the best estimate of the minimum number of individuals observed.

- **Number Sighted (Maximum)** - Record the best estimate of the maximum number of individuals observed.

- **Narrative and Sketches** - Record physical and behavioral information about the animal(s). This section is the most important section of the form and should be completed as fully as possible. A short list of key features to note is listed below:

  Bony or soft shell
  Number left coastal scutes
  number right costal scutes
  number inframarginal scutes
  over lapping scutes-yes or no
  inframarginal pore-yes or no
  prefrontal scutes
  Animal behaviors

- **Behaviors Seen**- Circle all of the behaviors observed during the sighting. Document these behaviors in the Notes section in the database.

- **Fishing Interactions** - Circle all of the interactions observed between the animal and fishing vessel.

- **MM/ST/ST Silhouettes (Back of Form)**- Does not need to be filled out for sea turtles.

- **Photos/Video (Back of Form)**- Record the barcode number from the disposable camera and frame number(s) of the picture(s) Marine Mammal Sighting Form – Front

MARINE MAMMAL/SEABIRD/SEA TURLE INTERACTION AND SIGHTING FORM

Trip Number ☐☐☐☐☐☐ **USCG #** ☐☐☐☐☐☐☐

Observer _____ **Sighting Condition**

Vessel _____ ☐ Excellent ☐ Fair

Date ☐☐ ☐☐ ☐☐ MM/DD/YY ☐ Good ☐ Poor

Time ☐☐:☐☐ HH:MM **Beaufort Scale** ☐

Latitude ☐☐° ☐☐.☐ N **Water Temp** ☐☐ ° C

Longitude 1☐☐° ☐☐.☐ W **Confidence** ☐ Sure ☐ Likely ☐ Unsure

Species (Common Name): _____

Body Length ☐ <3 m (<10') ☐ 3-8 m (10-25') ☐ 8-16 m (25-50') ☐ 16-26 m (50-80') ☐ >26 m (>80')

Closest Approach	Number Sighted (Best)	Number (Min)	Number (Max)
☐☐☐☐ M	☐☐☐☐	☐☐☐☐	☐☐☐☐

Notes & Identifying Characteristics

Behaviors

Small Cetaceans
Bow riding
Leaping entirely out of water
Proposing
Rooster-tailing
Slow rolling

Large cetaceans
Blow visible for a distance
Breaching
Flipper Slapping
Group Feeding
Lob-tailing
Spy-hopping
Tail raised on dive
Side wake riding
Stern wake riding

Pinnipeds
Jug handle
Porpoising
Rafting
Spooked from haulout
Vocalizing

Sea Turtles
Swimming
Diving
Floating/Basking
Foraging
Breathing

Fishing Interactions

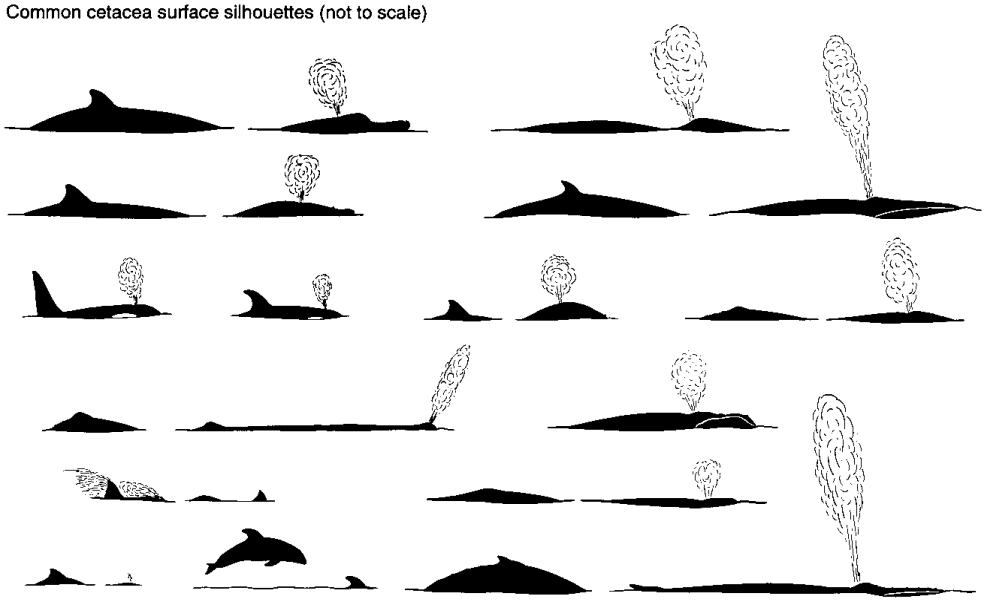
1 - Feeding on Discards
2 - Feeding from Gear
3 - Feeding on Catch
4 - Contact with Vessel
5 - Contact with Gear
6 - Trailing Gear
7 - Deterrence Used
8 - Boarded Vessel
9 - Swimming near Gear
10 - Killed by Gear
11 - Killed by Propeller
12 - Previously Dead
13 - Lethal removal (trailing gear)
14 - Lethal removal (not trailing gear)
15 - Entangled in Gear (not trailing gear)
16 - Entangled in Gear (trailing gear)
17 - Other
18 - Unknown

(circle all that apply)

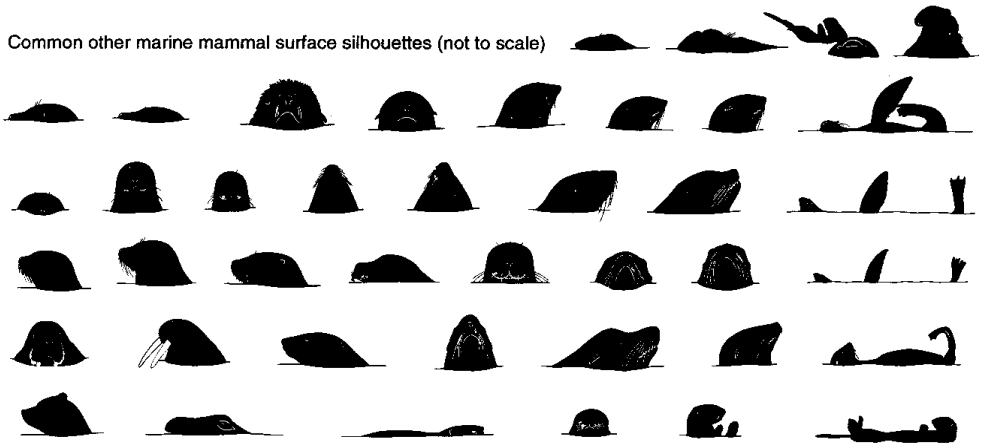
WCGOP MM/SB/ST Form v.4 January 2006

Figure 8-11: MM/SB/ST Form (Front)

Common cetacea surface silhouettes (not to scale)



Common other marine mammal surface silhouettes (not to scale)



These are silhouettes of most genera of marine mammals known to occur in and around North America. Subtilties exist between closely related genera. Care should be taken in identifying species. Assessing one's level of confidence with copious notes and observations is more valuable than a brief misidentification.

Photo/Videos

Barcode # _____

Frames _____

BEAUFORT SCALE (Sea Condition)		*wind*	*wave height*	
0	glassy, calm	0 , 1 kts	calm	
1	light ripple	1 < 4 kts	light air	1/4'
2	small wavelets	4 < 7 kts	light breeze	1/2'
3	scattered whitecaps	7 < 11 kts	gentle breeze	2'
4	small waves, frequent whitecaps	11 < 17 kts	moderate breeze	4'
5	moderate waves, many whitecap	17 < 22 kts	fresh breeze	6'
6	all whitecaps, some spray	22 < 28 kts	strong breeze	10'
7	breaking waves, spindrift	28 < 34 kts	near gale	14'
8	medium high waves, foamy streaks	34 < 41 kts	gale	18'
9	high waves, dense foamy streaks	41 < 48 kts	strong gale	22'
10-12	not meaningful (time to go home)			

Figure 8-12: MM/SB/ST Form (Back)

Sea Turtle Life History Form Instructions

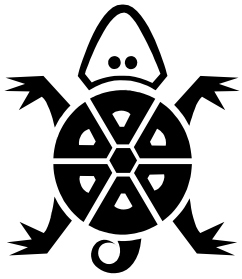
The "Gill Net Sea Turtle Life History Form" has been borrowed from the NMFS South West Region Drift Gillnet Observer Program and should be completed for all sea turtles encountered. "Sea Turtle Life History Form – Front" on page 50 and "Sea Turtle Life History Form-Back" on page 51.

Header

- **Trip Number** – Record the trip number generated by the database system.
- **Specimen** – Leave this field blank.
- **Date** – Record as YY – MM – DD.
- **Set #** - Record the haul or set number.
- **Latitude** – Record the haul/set retrieval latitude as degrees (two digits) and minutes (two digits).
- **Longitude** – Record the haul/set retrieval longitude as degrees (three digits) and minutes (two digits).
- **Species** – Record the two letter species code for the turtle.

  LV – Olive Ridley
  ET – Hawksbill
  CM – Green/Black
  CC – Loggerhead
  DC – Leatherback
  UT – Unidentified
  Identification

- **Left Costal Scutes** – Record the scute count.
- **Right Costal Scutes** – Record the scute count.
- **Vertebral Scutes** – Record the scute count.
- **Inframarginal Scutes** – Record the scute count.



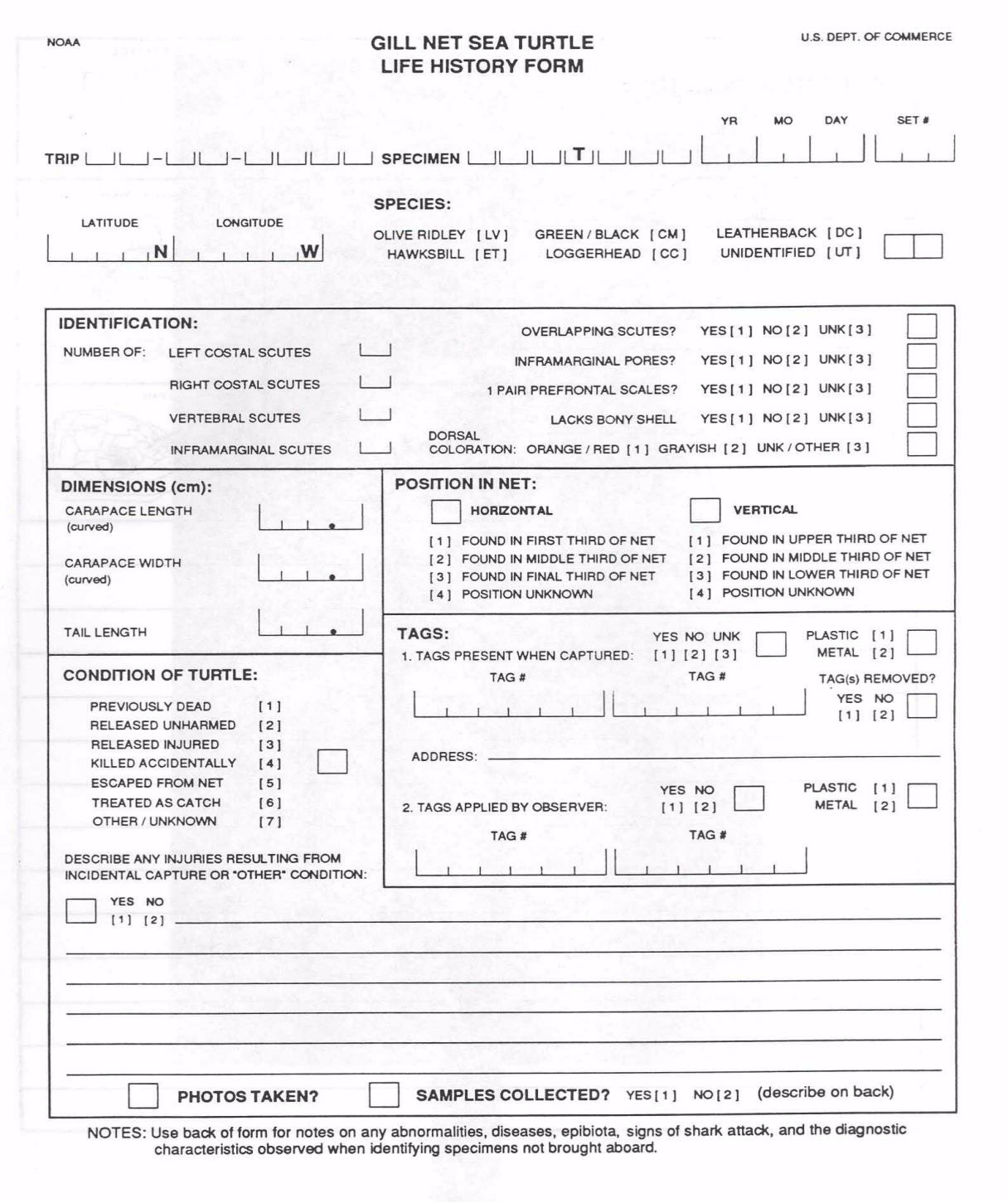
- **Overlapping Scutes** – Record a 1 for yes, 2 for no, or 3 for unknown.
- **Inframarginal Pore** - Record a 1 for yes, 2 for no, or 3 for unknown.
- **1 Pair of Prefrontal Scales** – Record a 1 for yes, 2 for no, or 3 for unknown.
- **Lacks Bony Shell** - Record a 1 for yes, 2 for no, or 3 for unknown.
- **Dorsal Coloration** – Record a 1 for orange/red, 2 for grayish, or 3 for other/unknown.
- Dimensions
  - **Carapace Length** – Record the length to the nearest tenth of a centimeter.
  - **Carapace Width** – Record the length to the nearest tenth of a centimeter.
  - **Tail Length** - Record the length to the nearest tenth of a centimeter.
- Condition of Turtle
  - Enter the number of the description that best represents the condition of the turtle.

    1 - Previously dead
    2 - Released unharmed
    3 - Released injured
    4 - Killed accidentally
    5 - Escaped from net
    6 - Treated as catch
    7 - Other/unknown
- **Describe Any Injuries** – Provide notes on any injuries or on the general condition of the turtle. If notes are made, record a 1 for yes. Otherwise, record a 2 for no.
- **Photos Taken** – Record a 1 for yes or 2 for no. Record the camera bar code and frame numbers in the comments section.
- **Samples Collected** – Record "2 – No". At this time we are not collecting ANY samples from turtles.

- Position In Net
    - **Horizontal** - Leave this field blank.
    - **Vertical** - Leave this field blank.
        - Tags

- **Tags Present When Captured** – If a tag is present, record a 1 for yes and the additional information below. If a tag is not present, record 2 for no.
    - **Tag #** - Record the tag number(s).
    - **Tag Type** – Record a 1 for plastic or 2 for metal.
    - **Tag(s) Removed** – Record a 1 for yes or 2 for no.
    - **Address** – Print the return address on the tag(s).

- **Tags Applied By Observer** – Leave this section blank.



NOAA

GILL NET SEA TURTLE LIFE HISTORY FORM

U.S. DEPT. OF COMMERCE

TRIP ☐☐-☐☐-☐☐☐☐ SPECIMEN ☐☐☐T☐☐☐ YR ☐☐ MO ☐☐ DAY ☐☐ SET # ☐☐☐

LATITUDE ☐☐☐ N LONGITUDE ☐☐☐ W

SPECIES:

OLIVE RIDLEY [LV] GREEN / BLACK [CM] LEATHERBACK [DC]
HAWKSBILL [ET] LOGGERHEAD [CC] UNIDENTIFIED [UT] ☐☐

IDENTIFICATION:

NUMBER OF: LEFT COSTAL SCUTES ☐
RIGHT COSTAL SCUTES ☐
VERTEBRAL SCUTES ☐
INFRAMARGINAL SCUTES ☐

OVERLAPPING SCUTES? YES [1] NO [2] UNK [3] ☐
INFRAMARGINAL PORES? YES [1] NO [2] UNK [3] ☐
1 PAIR PREFRONTAL SCALES? YES [1] NO [2] UNK [3] ☐
LACKS BONY SHELL YES [1] NO [2] UNK [3] ☐
DORSAL COLORATION: ORANGE / RED [1] GRAYISH [2] UNK / OTHER [3] ☐

DIMENSIONS (cm):

CARAPACE LENGTH (curved) ☐☐☐.☐
CARAPACE WIDTH (curved) ☐☐☐.☐
TAIL LENGTH ☐☐☐.☐

POSITION IN NET:

☐ HORIZONTAL
[1] FOUND IN FIRST THIRD OF NET
[2] FOUND IN MIDDLE THIRD OF NET
[3] FOUND IN FINAL THIRD OF NET
[4] POSITION UNKNOWN

☐ VERTICAL
[1] FOUND IN UPPER THIRD OF NET
[2] FOUND IN MIDDLE THIRD OF NET
[3] FOUND IN LOWER THIRD OF NET
[4] POSITION UNKNOWN

TAGS:

1. TAGS PRESENT WHEN CAPTURED: YES [1] NO [2] UNK [3] ☐ PLASTIC [1] METAL [2] ☐
TAG # ☐☐☐☐☐☐ TAG # ☐☐☐☐☐☐ TAG(s) REMOVED? YES [1] NO [2] ☐

ADDRESS: _____

2. TAGS APPLIED BY OBSERVER: YES [1] NO [2] ☐ PLASTIC [1] METAL [2] ☐
TAG # ☐☐☐☐☐☐ TAG # ☐☐☐☐☐☐

CONDITION OF TURTLE:

PREVIOUSLY DEAD [1]
RELEASED UNHARMED [2]
RELEASED INJURED [3]
KILLED ACCIDENTALLY [4] ☐
ESCAPED FROM NET [5]
TREATED AS CATCH [6]
OTHER / UNKNOWN [7]

DESCRIBE ANY INJURIES RESULTING FROM INCIDENTAL CAPTURE OR "OTHER" CONDITION:

☐ YES [1] NO [2] _____

☐ **PHOTOS TAKEN?** ☐ **SAMPLES COLLECTED?** YES [1] NO [2] (describe on back)

NOTES: Use back of form for notes on any abnormalities, diseases, epibiota, signs of shark attack, and the diagnostic characteristics observed when identifying specimens not brought aboard.

Figure 8-13: Sea Turtle Life History Form – Front

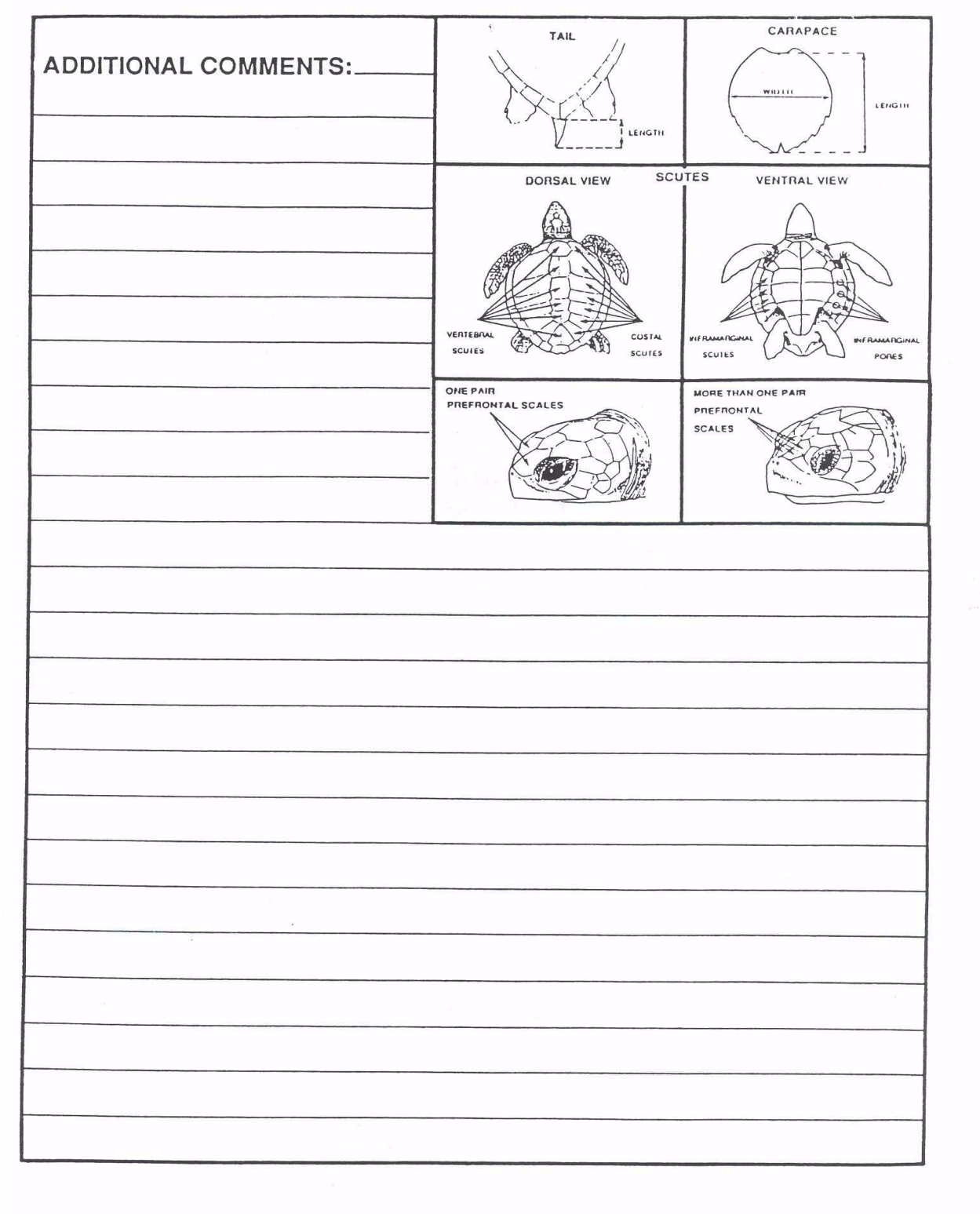


Figure 8-14: Sea Turtle Life History Form-Back